

The following Listing of the Claims will replace all prior versions and all prior listings of the claims in the present application:

Listing of The Claims:

1. (Original) A metal oxide material comprising at least one metallic oxide wherein said metallic oxide is aligned in a three-dimensionally periodic orientation so as to confer a symmetric nanostructural morphology to said metal oxide material.
2. (Original) The metal oxide material of claim 1, wherein the symmetric nanostructural morphology has a pre-determined symmetry.
3. (Original) The metal oxide material of claim 1, wherein the metallic oxide is selected from the group consisting of ZnO, In₂O₃, and combinations thereof.
4. (Currently Amended) The metal oxide material of claim 1, wherein the symmetric nanostructural morphology is selected from the group consisting of a nanobridge, nanonail, nanoribbon, nanowire, nanowall, nanobrush and combinations thereof.
5. (Original) The metal oxide material of claim 1, wherein the metallic oxide further comprises a dopant material.
6. (Original) The metal oxide material of claim 5, wherein the dopant materials is tin.
7. (Original) The metal oxide material of claim 1, comprising a first metallic oxide and a second metallic oxide, wherein said first metallic oxide forms a central nanostructural spine having a linear axis, whereupon said second metallic oxide forms terminally attached three-dimensional periodically oriented linear nanostructural rods, the linear axes of said nanostructural rods being oriented substantially non-parallel to the linear axis of said nanostructural spine of said first metallic oxide.
8. (Original) The metal oxide material of claim 1, comprising at least three metallic oxides
9. (Original) The metal oxide material of claim 8, wherein the metallic oxides are selected from the group consisting of ZnO, GeO₂ and In₂O₃.

10. (Original) The metal oxide material of claim 1, with a pre-determined symmetry consisting essentially of 2-fold symmetry, 4-fold symmetry or 6-fold symmetry or combinations thereof.
11. (Original) The metal oxide material of claim 7, wherein the central nanostructural spine consists essentially of In_2O_3 .
12. (Original) The metal oxide material of claim 7, wherein second metallic oxide consists essentially of ZnO, GeO_2 or MgO.
13. (Currently Amended) The metal oxide material of claim 7, wherein the central nanostructural spine has a length ranging between about 0.01 and about 100 μm .
14. (Currently Amended) The metal oxide material of claim 7, wherein the central nanostructural spine has a length ranging between about 1 and about 20 μm .
15. (Currently Amended) The metal oxide material of claim 7, wherein the central nanostructural spine has a ~~thickness~~ diameter ranging between about 10 and about 1000 nm.
16. (Currently Amended) The metal oxide material of claim 7, wherein the central nanostructural spine has a ~~thickness~~ diameter ranging between about 50 and about 500 nm.
17. (Currently Amended) The metal oxide material of claim 7, wherein the nanostructural rods comprising the second metallic oxide have a length ranging between about 0.01 and about 100 μm .
18. (Currently Amended) The ~~metallie~~ metal oxide material of claim 7, wherein the nanostructural rods comprising the second metallic oxide have a length ranging between ~~2~~ about 0.2 and about 5 μm .
19. (Currently Amended) The metal oxide material of claim 7, wherein the nanostructural rods comprising the second metallic oxide have a ~~width~~ diameter ranging between about 10 and about 1000 nm.

20. (Currently Amended) The metal oxide material of claim 7, wherein the nanostructural rods comprising the second metallic oxide have a ~~width~~ diameter ranging between about 20 and about 200 nm.
21. (Original) The metal oxide material of claim 7, wherein the nanostructural rods comprising the second metallic oxide are substantially orthogonal to the linear axis of said central nanostructural spine.
22. (Original) The metal oxide material of claim 7, wherein the nanostructural rods comprising the second metallic oxide are slanted to the central nanostructural spine so as to form a finite, non-orthogonal angle with the linear axis of said central nanostructural spine.
23. (Original) The metal oxide material of claim 7, wherein at least one of the metallic oxides further comprises a dopant material.
24. (Original) The metal oxide material of claim 23, wherein the dopant material is tin.
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55. (New) A metal oxide material comprising:

a central three-dimensional nanostructure having a linear axis formed from at least one metallic oxide; and

a plurality of three-dimensional nanostructures formed from at least one metallic oxide, wherein a distal end of the plurality of three-dimensional nanostructures is attached to the central three-dimensional nanostructure.

56. (New) The metal oxide material of claim 55, wherein the metallic oxide is selected from the group consisting of ZnO, In₂O₃, GeO₂, MgO and combinations thereof.
57. (New) The metal oxide material of claim 55, wherein the metallic oxide further comprises a dopant material.
58. (New) The metal oxide material of claim 57, wherein the dopant material is selected from the group consisting of tin and germanium.
59. (New) The metal oxide material of claim 55, wherein the central three-dimensional nanostructure is formed from In₂O₃ and the plurality of three-dimensional nanostructures is formed from ZnO.
60. (New) The metal oxide material of claim 55, wherein the three-dimensional nanostructure has a morphology selected from the group consisting of a nanoribbon, nanowire, nanobelt, nanocrystal, nanowall and combinations thereof.
61. (New) The metal oxide material of claim 55, wherein the central three-dimensional nanostructure has a length ranging between about 0.01 and about 100 μ m.
62. (New) The metal oxide material of claim 55, wherein the central three-dimensional nanostructure has a diameter ranging between about 10 and about 1000 nm.
63. (New) The metal oxide material of claim 55, wherein each of the plurality of three-dimensional nanostructures have a length ranging between about 0.01 and about 100 μ m.
64. (New) The metal oxide material of claim 55, wherein each of the plurality of three-dimensional nanostructures have a diameter ranging between about 10 and about 1000 nm.

65. (New) The metal oxide material of claim 55, wherein the plurality of three-dimensional nanostructures are aligned in a direction either perpendicular to the linear axis of the central three-dimensional nanostructure or at a finite non-perpendicular angle.
66. (New) The metal oxide material of claim 55 for use in a microelectronic device.
67. (New) The metal oxide material of claim 66, wherein the microelectronic device is selected from the group consisting of field emission device, photovoltaic device, optoelectronic device, blue optical device, ultra-violet optical device, transparent conductive film, transparent electronic imaging shielding device, transparent field effect transistor, supercapacitor, fuel cell, nanocomposite, data-storage device, biochemical sensor, chemical sensor, gas sensor, solar cell, photocatalysis device, bulk acoustic waves device, window heating device, and light emitting diode.
68. (New) A metal oxide material comprising:

a first metallic oxide in the form of a three-dimensional linear nanostructure; and

at least one second metallic oxide in the form of a three-dimensional linear nanostructure and extending in a lateral direction from the first metallic oxide.
69. (New) The metal oxide material of claim 68, wherein the first metallic oxide and the at least one second metallic oxide is selected from the group consisting of ZnO, In₂O₃, GeO₂, MgO and combinations thereof.
70. (New) The metal oxide material of claim 68, wherein the metallic oxide further comprises a dopant material.
71. (New) The metal oxide material of claim 70, wherein the dopant material is selected from the group consisting of tin and germanium.
72. (New) The metal oxide material of claim 68, wherein the three-dimensional linear nanostructure has a morphology selected from the group consisting of a nanobridge, nanonail, nanoribbon, nanowire, nanowall, nanobrush and combinations thereof.

73. (New) The metal oxide material of claim 68, wherein the at least one second metallic oxide is aligned in a direction either perpendicular to the first metallic oxide or at a finite non-perpendicular angle.
74. (New) The metal oxide material of claim 68 for use in a microelectronic device.
75. (New) The metal oxide material of claim 74, wherein the microelectronic device is selected from the group consisting of field emission device, photovoltaic device, optoelectronic device, blue optical device, ultra-violet optical device, transparent conductive film, transparent electronic imaging shielding device, transparent field effect transistor, supercapacitor, fuel cell, nanocomposite, data-storage device, biochemical sensor, chemical sensor, gas sensor, solar cell, photocatalysis device, bulk acoustic waves device, window heating device, and light emitting diode.
76. (New) The metal oxide material of claim 68, wherein the first metallic oxide has a length ranging between about 0.01 and about 100 μm .
77. (New) The metal oxide material of claim 68, wherein the first metallic oxide has a diameter ranging between about 10 and about 1000 nm.
78. (New) The metal oxide material of claim 68, wherein each of the at least one second metallic oxide has a length ranging between about 0.01 and about 100 μm .
79. (New) The metal oxide material of claim 68, wherein each of the at least one second metallic oxide has a diameter ranging between about 10 and about 1000 nm.
80. (New) A metal oxide material comprising a plurality of three-dimensional nanostructures formed from at least one metallic oxide and interconnected to form a network.
81. (New) The metal oxide material of claim 80, wherein the network of the plurality of three-dimensional nanostructures has a pore size ranging from about 200 nm to about 1 μm .
82. (New) The metal oxide material of claim 80, wherein each of the plurality of three-dimensional nanostructures are parallel to each other.

83. (New) The metal oxide material of claim 80, wherein each of the plurality of three-dimensional nanostructures are arranged in a quasi-hexagonal pattern.
84. (New) The metal oxide material of claim 80, wherein each of the plurality of three-dimensional nanostructures form angles that are multiples of about 30° .